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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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08/31/2001

Gregory W. Farrell

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EXAMINER

AFTERGUT, JEFF H

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/943,789	<b>Applicant(s)</b> FARELL ET AL.	
	<b>Examiner</b> Jeff H. Aftergut	<b>Art Unit</b> 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20,37 and 38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20,37 and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Japanese Patent 11-350255 or E.P. 586,924 further taken with either one of PCT WO 90/13423 or Canadian Patent 2191072 for the same reasons as presented in paragraph 2 of the Office action dated April 1, 2004.
3. Claims 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as set forth above in paragraph 2 further taken with either one of Hansen (newly cited of record) or Lurken (the article entitled "The significance of the Calendar In the Production of Nonwovens With Special Regard to Thermobonding" from Nonwovens Industry, newly cited, of record) and the Modern Plastics Encyclopedia 1983-84 (newly cited).

The references as set forth above appear to suggest that one skilled in the art would have operated the calendar of the embossing roller at a temperature above the melting point of one of the polymers of the bicomponent fibers. Applicant is referred to the translation of the Japanese Patent where in paragraph [0014] the reference stated that the melting point of the polyethylene material utilized as the sheath was 90-125 degrees C and paragraphs [0060], [0064], [0068] for example where the temperature of the embossing roller was described as being about 120 degrees C (which is above the melting point of polyethylene which had a melting point of about 90-125 degrees C. The reference to E.P. '924 which suggested bicomponent fibers including both polyethylene cores as well as polyethylene sheaths, suggested that the embossing operation would have been performed according to the processing of Hansen, column 8, lines 42-47.

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Hansen, column 6, lines 16-29, suggested operating the embossing rollers at temperatures of 275-350 degrees F (or 135-177 degrees C) which is clearly above the melting point of the polyethylene in the bicomponent fibers. To further evidence that one skilled in the art at the time the invention was made would have operated the processing at temperatures above the melting point of the polyethylene, the references to Hansen and Lurken are cited.

Hansen is discussed above and clearly expressed operation at temperatures between 135-177 degrees C. The reference suggested that the operating temperatures of the embossing rollers be around the melting temperature of polypropylene (when using polypropylene as the web material being embossed). The Modern Plastics Encyclopedia evidenced that the melting temperature of polypropylene was 168 degrees C. Thus, operation of the embossing roller would have included temperatures for the embossing roller which were higher than the melting point of the material being processed (177 degrees C is more than 168 degrees C). Additionally, note that processing according to Hansen in E.P. '924 would have processed the materials at a temperature which was more than the melting point of the low melting point component of the arrangement as polyethylene has a lower melting point than polypropylene. It should also be noted that Hansen expressly stated that the operating temperature of the embossing roller was a function of the speed of processing of the material in the operation. As such, one would have understood that at higher processing speeds the embossing roller would have to be held at a higher temperature in order to adequately heat the materials during the embossing operation. Lurken, as discussed in the Office action dated April 1, 2004, suggested that those skilled in the art at the time the invention was made would have employed a temperature for the processing of polypropylene nonwoven which was as high as 185 degrees C when processing at high speeds. Such is

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significantly above the melting temperature of polypropylene as evidenced by the Modern Plastics Encyclopedia, and one skilled in the art would have understood that the temperature of the embossing roller was a function of the speed of feed of the web of material through the operation. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made to process the nonwoven bicomponent materials with an embossing roller which was heated above the melting temperature of the polymer utilized in the bicomponent fibers in order to increase the rate of production evidenced by either one of Hansen or Lurken and the Modern Plastics Encyclopedia in the operation of making a bonded non-woven web as set forth above in paragraph 2.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-12, 37, and 38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In each of the identified independent claims, applicant has amended the claims to recite that the fabric produced was “a fabric having improved abrasion resistance and strength as compared to a fabric bonded by an uncoated embossing roll”. However, the original disclosure does NOT support this contention. In fact, it is only at the higher temperature conditions that the strength and abrasion resistance of the fabric are superior to that of the fabric

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formed by an uncoated embossing roll. It is suggested that applicant amend the claim to recite that the improved abrasion resistance and strength were achieved at the high temperatures of the processing when compared to that of an uncoated roll as this is what is disclosed in relation to the operating "window".

### ***Response to Arguments***

6. Applicant's arguments filed June 29, 2004 have been fully considered but they are not persuasive.

The applicant initially addresses the unexpected results in relation to the increased temperature "window" of operation. Applicant is advised that the claims at hand are not commensurate in scope with the declaration in that the temperature of the processing of the embossing operation as defined can take place at a temperature which is below the melting point of the low melting point component of the assembly (i.e. the claims state that the temperature of the embossing roll at the nip can be at 90 degrees C which is lower than the melting point of the polyethylene utilized in the process and thus the claims do not exclude processing at the lower temperatures (the unexpected results are for processing outside the usual temperature "window" which is above the melting point of the polymer material)). The applicant is advised additionally that the improved properties recited in claims 1, 10, and 38 only relate to the temperatures outside the usual temperature range for processing the material as discussed by applicant.

The applicant is additionally advised that the temperature of the embossing roller is a function of the speed at which one desired to process the web (as one increased the speed of the web, one would have to increase the temperature of the roll in order to ensure that the material

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was adequately heated in the embossing operation). The references to Hansen and Lurken suggested that one skilled in the art would have processed the materials at around the melting point of the materials and in order to do the same at high speed manufacture such would require heating the embossing roller at a temperature above the melting point of the material. again, applicant is advised that the claims are not commensurate in scope with the disclosure as the comparison made between the uncoated roll must address the speed of manufacture of the operation (and as noted above at higher speeds one would have heated the embossing roller at higher temperatures).

Applicant is additionally advised that the increase in the temperature window for operating was a function of the sticking of the nonwoven to the embossing roller which resulted in the wrapping of the nonwoven about the embossing roll which is discussed at length in the specification as the problem with operation at higher temperatures. The inclusion of a fluoropolymer coating on the roll (the embossing tool) would have eliminated the sticking of the fibers to the embossing roll as evidenced by the references to Canadian Patent '072 or PCT '423. as such, it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the embossing roll assembly at a higher temperature (i.e. that operation above the melting point would have been possible and that the range of temperature useful would have been increased because the sticking of the polymer to the embossing roller would have been eliminated). Applicant's alleged result is therefore not entirely unexpected.

Applicant addressed the reference to E.P. '924 and states that the reference did not employ a bicomponent fiber with a sheath of low melting point polyethylene and a core of polypropylene. While it is correct that in the preferred embodiment polymer A is polypropylene

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and polymer B is polyethylene, the reference at page 6, lines 30-36 broadly recited the use of different polymers for polymer A and B which included the combination of a sheath of polyethylene and a core of polypropylene. Additionally, note that this argument only relates to independent claims 19 and 38 and that the reference to Japanese Patent '255 clearly provided a sheath of low melting point polyethylene and a core of polypropylene.

The applicant addresses the reference to PCT '423 and states that the reference is not related to embossing a nonwoven web having low melting point polymer components as the reference embosses a flash spun film-fibril sheet (which applicant argues is quite different from a nonwoven). It is agreed that the specified sheet is different from a non-woven, however the applicant is advised that the reference to PCT '423 suggested that in the past it was known to emboss nonwoven webs with metal embossing rollers but that at higher production rates, higher temperatures were required which resulted in the sticking of the fibers to the embossing rollers, page 2, lines 10-17. to solve this problem and allow one to operate the rolls at higher temperatures (without polymer sticking to the embossing roll), the reference suggested that one skilled in the art would have applied a fluoropolymer coating to the embossing roller to prevent sticking of the material to the roll and allow for higher temperature operation. It should be noted that the reference to PCT '423 inferred that application of a fluoropolymer coating upon the roller would have allowed one to process (emboss) the material at higher temperatures than was previously though possible to manufacture at higher production rates (and thus seems to suggest that applicant's unexpected results are in fact not unexpected). It would have been obvious to one of ordinary skill in the art to provide the fluoropolymer coating of PCT '423 on the embossing rollers in the references to Japanese Patent '255 or E.P. '924 to allow for higher



productivity of the nonwoven in the bonding operation (higher speed operation of the manufacturing device) as well as elimination of the sticking problem identified by applicant in the specification.

The applicant addressed the reference to Canadian Patent '072 and stated that the reference had nothing remotely to do the claimed operation because it only relates to a stamping tool. The applicant is advised that the reference to Canadian Patent '072 related to forming the surface of a material which had adhesive properties in the forming operation wherein the tool provided a grained surface finish (page 1, lines 19-22 and wherein the tool could be a roll for continuous operation, see page 2, lines 11-14. while the reference did not expressly state that the tool was an embossing tool, one would have understood that the graining of a surface with a tool in a continuous operation with a roll would have been performed via embossing. Additionally, the tooling operated on thermoplastic fleece (nonwoven) and other textile materials, see page 2, lines 16-21. it would appear for a reading of the reference as a whole that the reference related to embossing or surface shaping of textile materials which were thermoplastic and thus is related to embossing in the usual sense. The reference suggested that a fluoropolymeric coating would have been provided in order to avoid sticking of the material being shaped with the tooling in the operation. Clearly, to avoid the wrapping problem in the references to Japanese Patent '255 or E.P. '924, one would have been motivated to incorporate a fluoropolymeric coating on the embossing roller therein.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

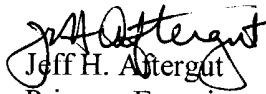
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Jeff H. Aftergut  
Primary Examiner  
Art Unit 1733

JHA  
July 28, 2004